Library Association, San Francisco; Ministerio de Fomento, and V. Reyes of Mexico; and the R. Academy of History in Madrid.

The death of Mr. Henry J. Williams, at Philadelphia, on the 12th instant, aged 86, was announced by Mr. J. S. Price.

On motion, the Hon. M. Russell Thayer was appointed to prepare an obituary notice of the deceased.

The death of Mr. Jacob B. Knight, at Philadelphia, on the 10th instant, aged 48 years, was announced by Mr. Price.

On motion Dr. Charles B. Dudley, of Altoona, was appointed to prepare an obituary notice of the deceased.

A communication for the Magellanic premium, entitled "Epi- and Hypo-cycloidal Linkages," was presented, and was, on motion placed in charge of Prof. J. P. Lesley, for the examination of members, and for reference to the Board of Officers and Council; accompanying this communication is a sealed envelope, inscribed X. Y. Z.

Prof. Sadtler presented a paper entitled, "Analysis of a Calculus found in a deer, by Edgar F. Smith," and another entitled "On a new and delicate chemical test for iron: by Edgar F. Smith."

Mr. Henry Phillips, Jr., read a brief account of the earthquake which occurred at Aachen (Aix la Chapelle) on Monday, the 26th of August, 1868.

Dr. Norris exhibited a microphone, in which the grating sound frequently heard was prevented by the pressure of a small spring upon the carbon rod.

Pending nominations 872, 874, 875, 876, 877, were read.

Prof. Marks exhibited some pieces of coal representing the theoretical limits of the power of coal, measured by foot pounds and horse power.

And the meeting was adjourned.

Analysis of a Calculus found in a Deer. By Edgar F. Smith, Ph.D.

(*Read before the American Philosophical Society, March* 21, 1879.)

This rather interesting specimen was given me by Mr. Hall, student in the Medical Department of the University. It was found by him in the

pelvis of the kidney of a doe, which had been shot by a party hunting in the north-western portion of this State.

As the investigation of such calculi very frequently affords some interesting results, I subjected this specimen to both a qualitative and quantitative examination.

The size of the calculus was equal to that of the egg of a pigeon. It possessed a fawn color and consisted of three layers encircling a rather large nucleus, which presented a granular sandstone-like appearance. The layers were exceedingly thin, and seemed to have grown out from carbonaceous deposits, which were detected in various portions of the calculus.

Upon testing the nucleus qualitatively the presence of silica, ferric oxide, calcium oxide and phosphoric acid was clearly shown. The surrounding layers were found to contain calcium and magnesium oxides, phosphoric acid, sodium, potassium, uric acid and another organic compound. The latter was extracted from the finely divided material by boiling the same for some time with alcohol. The alcoholic filtrate yielded upon evaporation a gelatinous mass, which proved to be the sodium salt of an acid, which formed strong, colorless needles, exhibiting an hexagonal structure. Upon gently warming this crystalline mass with a grain or two of sugar and a drop of concentrated sulphuric acid, a beautiful purple color appeared. It is true, several acids occurring in the bile give the same reaction with sugar and sulphuric acid, but not any of them, that I am aware, possess the crystalline form of the above compound, nor yield a sodium salt similar to that mentioned above. The only acid which in the least corresponds to the previous description is that known as *Lithofellic Acid*, which was discovered a number of years ago* in a variety of the deer family. The want of sufficient material prevented me from making other and more decisive tests to discover the real character of this compound.

As the layers surrounding the nucleus were alike in chemical composition they were finely divided and a qualitative analysis made of the mixture.

Analysis.

43.15 %	P_2O_5.
.91 %	MgO.
2.60 %	Loss on ignition.
2 50 %	CaO.
51.00 %	alkaline oxides.
100.16	

Detection of Iron by means of Salicylic Acid. By Edgar F. Smith, Ph.D.

(*Read before the American Philosophical Society, March* 21, 1879.)

While working upon various substitution products of salicylic acid I had frequent occasion to filter solutions of the latter acid and its derivatives, and during this operation was continually annoyed by the constant appear-

* Annalen d. chem. u. Phar. 30, p. 237.
" " " " 242.
" " " 41, p. 150.

ance of the beautiful purple color, which is produced when salicylic acid is brought in contact with ferric salts in solution. The best quantitative filter paper invariably gave a deep purple coloration, and as the paper was considered pure enough for all analytical purposes, a few tests were finally made with a view of learning approximately the amount of iron which could be detected by means of salicylic acid. As the halogen substitution derivatives of the acid give purple color with ferric salts several of them were also experimented upon with the results recorded below.

A litre of water containing one grain of iron as chloride was employed in the preparation of the iron solutions.

Salicylic Acid and Iron Solution.

(1) The $\frac{1}{1000}$th of a grm of iron—in a drop or two of water—gave a distinct violet color, when mixed with as much salicylic acid as could be taken upon the end of a small knife blade. The acid was usually dissolved in three or four drops of alcohol. In the following tests the same quantity of acid as above was used.

(2) The $\frac{1}{10.000}$th of a grm of iron—treated as in (1) gave distinct purple coloration.

(3) The $\frac{1}{80.000}$th of a grm of iron—same as (2).

(4) The $\frac{1}{200.000}$th " " —decided purple color.

(5) The $\frac{1}{400.000}$th " " —distinct purple color.

(6) The $\frac{1}{3.200.000}$th " " —visible color.

(7) The $\frac{1}{32.000.000}$th " " —very faint coloration.

Metachlorsalicylic Acid (Fuses at 172°C.) *and Iron Solution.*

(1) The $\frac{1}{10.000}$th of a grm of iron—beautiful purple color.

(2) The $\frac{1}{30.000}$th " " —deep purple.

(3) The $\frac{1}{100.000}$th " " —faint purple color.

(4) The $\frac{1}{300.000}$th " " —faint purple color, but more distinct than that produced by ordinary salicylic acid.

(5) The $\frac{1}{1.000.000}$th " " —very faint color.

Dibromsalicylic Acid (Fuses at 218°C.) *and Iron Solution.*

The $\frac{1}{10.000}$th of a grm of iron—remarkably deep purple color.

The $\frac{1}{30.000}$th " " —very deep purple color.

The $\frac{1}{100.000}$th " " —distinct purple color.

The $\frac{1}{1.000.000}$th " " —barely visible color.

Upon adding a drop of a potassium sulphocyanide solution to one containing the $\frac{1}{80.000.000}$th of a grm. of iron a distinct red color was noticed. Farther tests were not made.

I noticed, however, that salicylic acid was a decidedly good reagent for iron in the presence of an excess of copper. In fact it is more delicate than sulphocyanide in such cases.

Laboratory of the University of Pennsylvania, March 21, 1879.